REMARKS

This application has been amended in a manner that is believed to place it in condition for allowance at the time of the next Official Action.

Claims 36, 38-40, 42 and 44-47 are pending in the present application. Support for new claims 46-47 may be found in the original claims and in the present specification at page 3, line 24 to page 4, line 23.

In the outstanding Official Action, claims 36, 38-40, 42 and 44-45 were rejected under 35 U.S.C. §102(b) as allegedly being anticipated by SUNTHORNTHEPVARAKUL et al. or CLIFTON-BLIGH et al. This rejection is respectfully traversed.

As the Examiner is aware, the present invention relates to an assay for measuring antibodies to the thyrotropin receptor of the thyroid gland. For example, the present invention can be used to diagnose a condition in which the thyrotropin receptor is targeted by auto antibodies, such as Graves' Disease. In this condition the auto antibodies bind to the thyrotropin receptor and so switch on the thyroid making the individual hyper-throxic. Hyper-throxia can also occur where the thyroid is dysfunctional for other reasons. It is therefore important to be able to distinguish between Graves' Disease and other forms of hyper-thyroxia. This is because treatment regimens differ.

It is estimated that 1-2% of the population in the Western world, have a condition in which they produce auto antibodies to the thyrotropin receptor. Onset is usually in the late teens or early 20's, and it is especially important during pregnancy that the condition be identified and monitored so that it is not transferred to the embryo.

This present invention therefore offers, for the first time, the chance to measure auto antibodies, in order to diagnose a person with Graves' Disease, or to assess a condition after treatment. Additionally, it also means that the level of auto antibodies can be measured, on a monthly basis, during pregnancy to ensure that the embryo is not affected.

As both SUNTHORNTHEPAVARAKUL et al. and CLIFTON-BLIGH et al. disclose identifying mutations in the thyrotropin receptor, they actually teach away from measuring auto antibodies to the wild type receptor and the claimed invention.

SUNTHORNTHEPVARAKUL et al. teach a clone that is transfected with a mutated form of the thyrotropin receptor and a luciferase reporter construct. The Examiner's attention is respectfully directed to page 156 under the heading "Construction of Wild-Type and Mutant Thyrotropin-Receptor cDNA Expression Vectors", wherein it is stated that vectors are generated expressing mutant forms of the receptor.

Under the heading "Functional Studies of the Thyrotropin Receptors in a Transient Transfection System", SUNTHORNTHEPVARAKUL et al. teach, "Eight to 12 hours after transfection, the cells were washed and incubated for 48 hours with the complete medium in the absence or presence of various amounts of recombinant human thyrotropin". Almost immediately following transfection, i.e. within days of transfection, experiments were undertaken.

This is because the clones were not stably transfected with the receptor or reporter construct. Rather, they were transiently transfected, so producing cells that can only be used once before being thrown away.

CLIFTON-BLIGH et al. also teach transient transfection. Under the heading "Functional Studies", CLIFTON-BLIGH et al. state that: "DNA fragments bearing each mutation were replaced in full-length wild-type TSH receptor cDNA cloned into the eukaryotic expression vector pSVL, and constructs were verified by sequencing". CLIFTON-BLIGH et al. conduct experiments within a short time of transfection. This is because the modified TSH receptor and the reporter construct were not stably transfected. Thus, the cells could only be sued once before being discarded.

This stands in contrast to the claimed invention, which is directed to the stable transfection of the wild-type version of the thyrotropin receptor and the luciferase reporter construct. Stable transfection aids in the development of an

assay kit that can be used after its development, i.e. anytime, anywhere, and moreover, repetitively.

Thus, in view of the cited publications, applicants believe that the publications teach away from claimed invention.

Indeed, the Examiner's attention is directed to the declaration by Dr. Marian Ludgate as evidence in support of this view. The declaration explains why the cited publication of SUNTHORNTHEPVARAKUL et al. and CLIFTON-BLIGH et al. do not disclose or suggest the claimed invention.

In light of the above arguments and declaration made of record, applicants believe that the cited publications fail to anticipate or render obvious the claimed invention.

In view of the present amendment and the foregoing remarks, therefore, it is believed that this application is now in condition for allowance, with claims 36, 38-40, 42, and 44-47, as amended. Allowance and passage to issue on that basis are accordingly respectfully requested.

Entry of the above amendments is earnestly solicited. Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

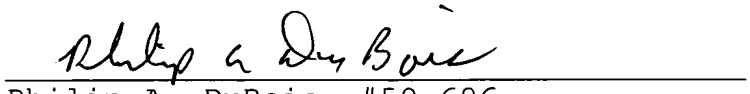
Should there be any matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any

overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

YOUNG & THOMPSON



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APPENDIX:

The Appendix includes the following item(s):

☒ - Declaration Under Rule 1.132 for Marian Elizabeth Ludgate